

CLAIMS

1. A method for the preparation of a silicon-containing polysulfide-type polymer characterized by mixing (A) a silicon-containing compound having a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond; (B) a polysulfide polymer with at least two mercapto groups in one molecule; and (C) an organic base or ammonia; said mixing being carried out in the presence of (D) sulfur.
2. The method of Claim 1, wherein said component (A) is an organosilane having a silicon atom-bonded monovalent organic group having an aliphatic unsaturated bond, and wherein said silicon-containing polysulfide-type polymer is a polysulfide-type polymer that contains an organosilyl group.
3. The method of Claim 2, wherein said organosilane contains a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond and a silicon atom-bonded alkoxy group.
4. The method of Claim 1, wherein said component (A) is an organosilane or mixtures of organosilanes represented by the following formula (1):

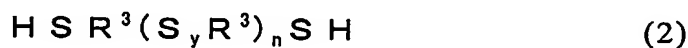


where R^1 is an alkoxyalkylene group or a monovalent hydrocarbon group with 1 to 10 carbon atoms, R^2 is a monovalent hydrocarbon group, other than the one having

15

1-15 carbon-atom aliphatic unsaturated bonds, R^5 is a monovalent hydrocarbon group with 2 to 16 carbon atoms having an aliphatic unsaturated bond, and "a" is a integer between 0 and 3.

- 5 5. The method of Claim 1, wherein said component (B) is a polysulfide polymer having molecular terminals capped with mercapto groups, which is expressed by the following formula (2):



10 [where R^3 is selected from an alkylene group with 2 to 10 carbon atoms, an arylene group with 6 to 10 carbon atoms, an alkyleneoxyalkylene group with 2 to 10 carbon atoms, or a divalent organic group of formula (3):



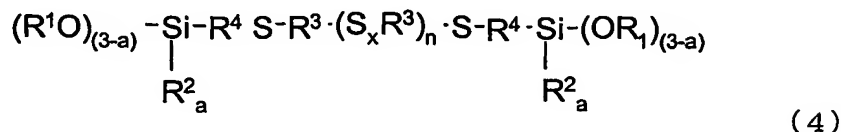
15 (where R^8 are the same or different alkylene groups with 1 to 10 carbon atoms, and "m" is a integer between 2 and 20), and a hydroxy-substituted alkylene group with 3 to 12 carbon atoms; "y" is a number with a mean value between 1.7 and 2, and "n" is a number with a mean value between 1 and 120].

- 20 6. The method of Claim 1, wherein said component (C) is a nitrogen-containing organic base.

7. The method of Claim 1, wherein mixing of said components (A) to (D) is carried out at a temperature within the range from room temperature to 200°C.

- 25 8. The method of Claim 5, wherein mixing of said components (A) to (D) is carried out in the atmosphere of inert gas.

9. A method for the preparation of a polysulfide-type polymer having an organosilyl group represented by the following formula (4):



- 5 [wherein R^1 , R^2 , R^3 , "a" and "n" are the same as defined below, R^4 is a residue formed in an addition reaction of the aliphatic unsaturated bond contained in below-defined R^5 of formula (1) of component (A) given below to a hydrogen atom of the mercapto group of below-given component (B), and "x" is a number which on average is greater than 1 and smaller than 8 or equal to 8], said method being characterized by mixing:

- 10 (A) an organosilane or mixtures of organosilanes represented by the following formula (1):



- 15 where R^1 is an alkoxyalkylene group or a monovalent hydrocarbon group with 1 to 10 carbon atoms, R^2 is a monovalent hydrocarbon group, other than the one having 1-15 carbon-atom aliphatic unsaturated bonds, R^5 is a monovalent hydrocarbon group with 2 to 16 carbon atoms having aliphatic unsaturated bonds, and "a" is a integer between 0 and 3;

- (B) a polysulfide polymer having molecular terminals capped with mercapto groups, which is expressed by the following formula (2):



17

[where R³ is selected from an alkylene group with 2 to 10 carbon atoms, an arylene group with 6 to 10 carbon atoms, an alkyleneoxyalkylene group with 2 to 10 carbon atoms, or a divalent organic group of formula (3):



(where R⁸ are the same or different alkylene groups with 1 to 10 carbon atoms, and m is an integer between 2 and 20), and a hydroxy-substituted alkylene group with 3 to 12 carbon atoms; "y" is a number with a mean value between 1.7 and 2, and "n" is a number with a mean value between 1 and 120], said component (B) being used in an amount of 10 to 200 mole % relative to said component (A);

(C) a nitrogen-containing organic base used in an amount of 0.01 to 10 mole % relative to said component (A); and

(D) sulfur used in such an amount that sulfur atoms constitute 1 to 600 mole % relative to 1 mole of the repeating units (S_yR³) in said component (B).

10. The method for the preparation of a polysulfide-type polymer having an organosilyl group according to Claim 7, wherein said mixing is carried out in an atmosphere of inert gas at a temperature within the range from room temperature to 200°C.